New research sheds light on future seasonal extremes

8 July 2015 - A more detailed view of how England and Wales climate is expected to change out to 2100 has been revealed in new research from the Met Office.

Published in *Nature Climate Change,* the research paper adds new insights to the UKCP09 climate projections - which provided information on how the UK climate might change in future based on 30-year averages.

Headline conclusions from UKCP09 were that in future we would expect a general trend towards milder, wetter winters and hotter, drier summers.

The newly published paper goes further by providing detail on how this trend interacts with the year-to-year variability in our climate system to affect individual seasons.

Results reveal that the chances of, for example, very cold winters or very wet summers reduce as the world warms under climate change - but they would still be possible in individual years.

David Sexton, lead author of the new research, said: "The original headline UKCP09 trends tell us how typical seasons might change, but our new research provides a more detailed picture of the range of seasonal temperatures and rainfall we could see in a given year.

"The future climate can now be described in terms of the extreme hot, cold, wet or dry seasons which could associate with floods, droughts, heatwaves and cold spells that impact society."

The paper suggests revised headlines for UKCP09 would be that we can expect an increasing chance of warmer winters, with fewer colder ones and we can also expect an increasing chance of dry summers, but only a modest reduction in the chances of very wet summers.

Results from the paper quantify the chances of specific types of seasons over England and Wales. Some of the key conclusions are:

Winter

- The chances of a colder than average winter (according to 1961-90 long-term averages) are about 20% by 2020, but they drop to 4% by 2100.
- The chance of the very cold winter temperature seen in 2009/10 was about 6%, but by 2100 the chance drops to less than 1%.

Summer

- For the next 20 years there is still a 35-40% chance of getting a wetter than average summer. The chance drops to about 20% by 2100.
- The chances of a very wet summer (defined as 20% more rain than the 1961-90 average) are expected to fall from 18% in 2020 to 10% by 2100.
- The chances of a summer considered very hot historically (happening once every 20 years) rises to 90% (i.e. happening much more often than not) by 2100.

Glen Harris, a co-author on the research, said: "While there is a trend towards warmer winters and drier summers, there will still be a lot of variations in weather from year to year. Cold winters and wet summers just become less likely, and we will still have to be prepared for them."

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